

Amendments to the Claims

This listing of claims will replace all prior revisions and listings of claims in this application.

Listing of Claims

- 1 1. (Cancelled) A method of determining which users, from a plurality of users, access
2 to a communications system is to be provided, such access being provided to the
3 plurality of users over a plurality of channels, the method comprising the steps of:
4 determining, for each of plurality of channels and for each of the plurality of
5 users, a channel measurement feedback characteristic;
6 determining, for each of the plurality of channels and for each of the plurality
7 of users, a past throughput characteristic; and
8 determining, a user to be provided access according to the following
9 relationship:

10
$$k^* = \arg \max_k \{ w_k \frac{r_k(t)}{\tilde{r}_k(t)^\alpha} \}$$

11 where

- 12 $r_k(t)$ is the channel measurement feedback
13 characteristic of user k ;
14 $\tilde{r}_k(t)$ is the mean throughput of user k ;
15 w_k is a weight applied to each of the users;
16 α is the *Alpha Rule* tuning parameter wherein $\alpha \neq 0$
17 and $\alpha \neq 1$; and
18 k^* is the selected user.

- 1 2. (Cancelled) The method according to claim 1 further comprising the steps of:
2 determining, a throughput characteristic for the system;
3 determining, a fairness characteristic for the system; and
4 adjusting α , as a result of the determined throughput characteristic and the
5 determined fairness characteristic.

3. (Currently Amended) ~~The method according to claim 2 further comprising the steps of:~~
A method of determining which users, from a plurality of users, access to a
communications system is to be provided, such access being provided to the plurality of
users over a plurality of channels, the method comprising the steps of:

determining, for each of plurality of channels and for each of the plurality of
users, a channel measurement feedback characteristic;
determining, for each of the plurality of channels and for each of the plurality of
users, a past throughput characteristic; and
determining, a user to be provided access according to the following relationship:

$$k^* = \arg \max_k \left\{ w_k \frac{r_k(t)}{\bar{r}_k(t)^\alpha} \right\}$$

where

$r_k(t)$ is the channel measurement feedback characteristic
of user k ;

$\bar{r}_k(t)$ is the mean throughput of user k ;

w_k is a weight applied to each of the users;

α is the *Alpha Rule* tuning parameter wherein $\alpha \neq 0$

and $\alpha \neq 1$; and k^* is the selected user; and

determining, a throughput characteristic for the system;

determining, a fairness characteristic for the system; and

adjusting α , as a result of the determined throughput characteristic and the

determined fairness characteristic; and

comparing, the determined throughput characteristic for the system with a target
throughput characteristic; and

comparing, the determined fairness characteristic for the system with a target
fairness characteristic.

4. (Previously Presented) The method according to claim 3 wherein the adjusting step
further comprising the steps of:

decrementing α , by a predetermined amount, when the determined throughput
characteristic for the system is \leq the target throughput characteristic and the

5 determined fairness characteristic for the system is \geq the target fairness
6 characteristic.

1 5. (Previously Presented) The method according to claim 3 wherein the adjusting step
2 further comprising the steps of:

3 incrementing α , by a predetermined amount, when the determined throughput
4 characteristic for the system is \geq the target throughput characteristic and the
5 determined fairness characteristic for the system is \leq the target fairness
6 characteristic.

1 6. (Previously Presented) The method according to claim 3 wherein the adjusting step
2 further comprising the steps of:

3 adjusting the targets, by a predetermined amount, when the determined
4 throughput characteristic for the system is \leq the target throughput
5 characteristic and the determined fairness characteristic for the system is \leq the
6 target fairness characteristic.

1 7. (Previously Presented) The method according to claim 3, wherein the throughput
2 characteristic \tilde{R} is determined according to the following relationship:

$$\tilde{R} = \sum_{k=1}^K \tilde{r}_k(t)$$

3
4 where

5 $\tilde{r}_k(t)$ is the mean throughput of user k and K is the total
6 number of users.

1 8. (Previously Presented) The method according to claim 3, wherein the fairness
2 characteristic \tilde{F} is determined according to the following relationship:

3

$$\tilde{F} = \frac{(\sum_{k=1}^K \tilde{r}_k(t))^2}{(K \sum_{k=1}^K \tilde{r}_k(t)^2)}$$

4

5

where

6

$\tilde{r}_k(t)$ is the mean throughput of user k ; and

7

K is the total number of users.

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9. (Previously Presented) The method according to claim 4, wherein α is decremented by a percentage of its present value.

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10. (Previously Presented) The method according to claim 5, wherein α is incremented by a percentage of its present value.

2

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11. (Previously Presented) The method according to claim 9, wherein the percentage that α is decremented by is between 0% and 100%.

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12. (Previously Presented) The method according to claim 10, wherein the percentage that α is incremented by is between 0% and 100%.

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13. (Currently Amended) The method according to claim ~~2~~3, wherein the adjusting of α is performed in real-time.

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